

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A heat sink device comprising:

a bulk region;

an attachment surface on a first side of said bulk region; and

5 a convection surface on a second side of said bulk region wherein said bulk region, attachment surface, and convection surface comprise a conductive loaded, resin-based material comprising micron conductive fiber  
~~conductive materials~~ in a base resin host and wherein said  
10 conductive loaded resin-based material is highly  
conductive.

2. (Currently Amended) The device according to Claim 1 wherein the ratio, by weight, of said micron conductive fiber ~~conductive materials~~ to said resin host is between about 0.20 and about 0.40.

3. (Original) The device according to Claim 1 wherein said convective surface comprises a plurality of fins.

4. (Currently Amended) The device according to Claim 1 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ metal powder.

5. (Original) The device according to Claim 4 wherein said metal powder is nickel, copper, silver, or is a material plated with nickel, copper, or silver.

6. (Original) The device according to Claim 4 wherein said metal powder comprises a diameter of between about 3  $\mu\text{m}$  and about 12  $\mu\text{m}$ .

7. (Currently Amended) The device according to Claim 1 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ non-metal powder.

8. (Original) The device according to Claim 7 wherein said non-metal powder is carbon, graphite, or an amine-based material.

9. (Currently Amended) The device according to Claim 1 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ a combination of metal powder and non-metal powder.

10. (Canceled)

11. (Currently Amended) The device according to Claim 1 ~~10~~ wherein said micron conductive fiber is nickel plated carbon fiber, stainless steel fiber, copper fiber, silver fiber or combinations thereof.

12. (Currently Amended) The device according to Claim 1 ~~10~~ wherein said micron conductive fiber pieces each have a diameter of between about 3  $\mu\text{m}$  and about 12  $\mu\text{m}$  and a length of between about 2 mm and about 14 mm.

13. (Currently Amended) The device according to Claim 1 further comprising a metal layer coated onto said conductive loaded resin-based material. ~~wherein said conductive materials comprise a combination of conductive powder and conductive fiber.~~

14. (Currently Amended) The device according to Claim 1 further comprising a metal layer plated onto said conductive loaded resin-based material. ~~overlying a part of said device.~~

15. (Currently Amended) A heat pipe device comprising:

a conduit comprising a conductive loaded, resin-based material comprising micron conductive fiber ~~conductive materials~~ in a resin host; and

5 a vaporizable liquid sealed inside said conduit.

16. (Currently Amended) The device according to Claim 15 wherein the ratio, by weight, of said micron conductive fiber ~~conductive materials~~ to said resin host is between about 0.20 and about 0.40.

17. (Original) The device according to Claim 15 wherein said convective surface comprises a plurality of fins.

18. (Currently Amended) The device according to Claim 15 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ metal powder.

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19. (Original) The device according to Claim 18 wherein said metal powder is nickel, copper, silver, or is a material plated with nickel, copper, or silver.

20. (Original) The device according to Claim 18 wherein said metal powder comprises a diameter of between about 3  $\mu\text{m}$  and about 12  $\mu\text{m}$ .

21. (Currently Amended) The device according to Claim 15 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ non-metal powder.

22. (Original) The device according to Claim 21 wherein said non-metal powder is carbon, graphite, or an amine-based material.

23. (Currently Amended) The device according to Claim 15 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ a combination of metal powder and non-metal powder.

24. (Canceled)

25. (Currently Amended) The device according to Claim 15 24 wherein said micron conductive fiber is nickel plated carbon fiber, stainless steel fiber, copper fiber, silver fiber or combinations thereof.

26. (Currently Amended) The device according to Claim 15 24 wherein said micron conductive fiber pieces each have a diameter of between about 3  $\mu\text{m}$  and about 12  $\mu\text{m}$  and a length of between about 2 mm and about 14 mm.

27. (Currently Amended) The device according to Claim 15 further comprising a metal layer coated onto said conductive loaded resin-based material. ~~wherein said conductive materials comprise a combination of conductive powder and conductive fiber.~~

28. (Currently Amended) The device according to Claim 15 further comprising a metal layer plated onto said conductive loaded resin-based material. ~~overlying a part of said device.~~

29. (Original) The device according to Claim 15 further comprising a wicking material inside said conduit wherein

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said wicking layer is capable of storing said vaporizable liquid in the liquid state.

30. (Original) The device according to Claim 29 wherein said wicking layer is a sintered powder, a grooved tube, or a wire mesh.

31. (Currently Amended) An electrical system device comprising:

an electrically powered device; and

5 a thermal dissipation device comprising a conductive loaded, resin-based material comprising material comprising micron conductive fiber ~~conductive materials~~ in a base resin host wherein said conductive loaded resin-based material is highly conductive.

32. (Original) The system according to Claim 31 wherein said thermal dissipation device comprises a heat sink.

33. (Original) The system according to Claim 31 wherein said thermal dissipation device comprises a heat pipe.

34. (Canceled)

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35. (Currently Amended) The device according to Claim 31 wherein conductive loaded resin-based material further comprises ~~the conductive materials comprise~~ a conductive powder.

36. (Currently Amended) The device according to Claim 31 further comprising a metal layer plated onto said conductive loaded resin-based material. ~~wherein said conductive materials comprise a micron conductive fiber.~~

37. (Canceled)

38. (Currently Amended) The device according to Claim 31 further comprising a metal layer coated onto said conductive loaded resin-based material. ~~further comprising a metal layer overlying a part of said device.~~

39. (Original) The device according to Claim 31 further comprising a means to force air across said convection surface.

40. (Original) The device according to Claim 31 further comprising a liquid in direct contact with said convection surface.



41. (Currently Amended) A method to form a thermal dissipation device, said method comprising:

providing a conductive loaded, resin-based material comprising comprising micron conductive fiber ~~conductive~~

5 ~~materials~~ in a base resin host wherein said conductive loaded resin-based material is highly conductive; and

molding said conductive loaded, resin-based material into a thermal dissipation device comprising a heat sink or a heat pipe.

42. (Currently Amended) The method according to Claim 41 wherein the ratio, by weight, of said micron conductive fiber ~~conductive materials~~ to said resin host is between about 0.20 and about 0.40.

43. (Currently Amended) The method according to Claim 41 wherein said conductive loaded resin-based material further comprises ~~the conductive materials comprise~~ a conductive powder.

44. (Currently Amended) The method according to Claim 41 further comprising a metal layer plated onto said

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conductive loaded resin-based material. ~~wherein said~~  
~~conductive materials comprise a micron conductive fiber.~~

45. (Canceled)

46. (Currently Amended) The method according to Claim 41  
further comprising a metal layer plated onto said  
conductive loaded resin-based material. ~~overlying a part of~~  
~~said device.~~

47-51 (Canceled).

52. (Currently Amended) A combined light and heat sink  
device comprising:

a light; and

a first terminal connected to said light;

5 a second terminal connected to said light; and

a heat sink wherein said first and second terminals

and said heat sink comprise a conductive loaded resin-based  
material comprising micron conductive fiber in a base resin  
host wherein said conductive loaded resin-based material is  
10 highly conductive.

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53. (Original) The device according to Claim 52 wherein said first terminal and said heat sink are a single, homogeneous piece of said conductive loaded resin-based material.

54. (Currently Amended) The device according to Claim 52 wherein the ratio, by weight, of said micron conductive fiber ~~conductive materials~~ to said resin host is between about 0.20 and about 0.40.

55. (Currently Amended) The device according to Claim 52 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ metal powder.

56. (Original) The device according to Claim 55 wherein said metal powder is nickel, copper, silver, or is a material plated with nickel, copper, or silver.

57. (Original) The device according to Claim 55 wherein said metal powder comprises a diameter of between about 3  $\mu\text{m}$  and about 12  $\mu\text{m}$ .

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58. (Currently Amended) The device according to Claim 52 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ non-metal powder

59. (Original) The device according to Claim 58 wherein said non-metal powder is carbon, graphite, or an amine-based material.

60. (Currently Amended) The device according to Claim 52 wherein said conductive loaded resin-based material further comprises ~~conductive materials comprise~~ a combination of metal powder and non-metal powder.

61. (Currently Amended) The device according to Claim 52 further comprising a metal layer plated or coated onto said conductive loaded resin-based material. ~~wherein said conductive materials comprise micron conductive fiber.~~

62. (Currently Amended) The device according to Claim 52 ~~61~~ wherein said micron conductive fiber is nickel plated carbon fiber, stainless steel fiber, copper fiber, silver fiber or combinations thereof.

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63. (Currently Amended) The device according to Claim 52 ~~61~~ wherein said micron conductive fiber pieces each have a diameter of between about 3  $\mu\text{m}$  and about 12  $\mu\text{m}$  and a length of between about 2 mm and about 14 mm.

64. (Canceled)